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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,589	06/29/2001	Peter Zhu	ASP-0028	7899

27777 7590 09/30/2003
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EXAMINER

WITHERSPOON, SIKARL A

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 09/30/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/896,589	ZHU ET AL.	
	Examiner	Art Unit	
	Sikarl A. Witherspoon	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 18, 19, 21-34 and 37 is/are rejected.
- 7) ☒ Claim(s) 16, 17, 35 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The examiner has considered applicants' amendment filed July 28, 2003. The amendment does not place the application in condition for allowance. Accordingly, the following rejections have been maintained.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7, 9, 18, 21-23, 26, 28, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Honda et al (JP 50006158). Honda et al discloses a process wherein wastewater, containing formaldehyde at a pH of 4.3, is neutralized with sodium hydroxide (NaOH). The resulting water was distilled to obtain water containing 27 ppm formaldehyde at a pH of 6.9 (see abstract). For the claims that are drawn to a system for making neutralized aldehydes (claims 21-23, 26, 28 and 37), the "container" is being treated as any vessel (apparatus) that would enable the claimed neutralization process to occur. Although Honda et al does not specifically mention the type of vessel that is used in their process, it is inherent that the reaction is taking place in some type of reaction vessel. As such, Honda et al anticipates the instant claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7-15, 18, 19, 27, and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riedel et al (U.S. 6,137,013) and Honda et al (JP 50006158) in combination, and further in view of De Micheli et al (U.S. 4,390,727).

Applicants claim a method and system for making a neutralized aldehyde of lessened toxicity by providing a α -hydrogen-free aldehyde, and contacting the aldehyde with a base to render the treated aldehyde neutralized and less toxic compared with the untreated aldehyde, and wherein the treated aldehyde is non-hazardous and has a LC₅₀ greater than 500mg/L. Further limitations include the aldehyde being selected from o-phthalaldehyde, formaldehyde, or mixtures thereof; the base comprising at least one hydroxide group; the hydroxide group being produced from a chemical reaction; and the treated aldehyde having a pH that may be adjusted according to the instant claims.

Riedel et al teaches a method of stabilizing aliphatic aldehydes having from 3 to 14 carbon atoms by the addition of alkaline substances, such as alkali metal and alkaline earth metal hydroxides (see abstract). The preferred stabilizing compounds are potassium and sodium hydroxide (col. 3, lines 28-31).

The differences between Riedel and the present invention are that Riedel does not specifically stabilize the same aldehydes as applicants, and does not mention the pH of the stabilized aldehyde, nor how the pH may be adjusted.

Honda et al, however, teaches that formaldehyde may be neutralized with sodium hydroxide. A pH change from 4.3 to 6.9 is noted (see CAPLUS abstract). De Micheli et al teaches a process for preparing stable aqueous suspensions of formaldehyde in the presence of "conventional" stabilizing agents, and adjusting the pH of the aqueous solution of aldehyde. The pH may be adjusted using alkaline agents, acids, such as sulfuric acid, or organic acids, such as formic acid and acetic acid (abstract and col 2, lines 44-66). The water constituting the aqueous solution may also affect the pH.

It would have been obvious to one of ordinary skill in the art, at the time the present invention was made, to combine Riedel et al with Honda et al. Since both references teach the use of hydroxides, specifically sodium hydroxide, to neutralize aldehydes, the artisan would have been motivated to combine the teachings to expand on the types of aldehydes that may be neutralized using sodium hydroxide; i.e., the aliphatic aldehydes taught by Riedel, and the α -hydrogen-free aldehyde (formaldehyde) taught by Honda et al. The motivation to combine Riedel and Honda with De Micheli et al is found in Honda et al, wherein a pH change of 4.3 to 6.9 is noted. However, Honda doesn't specifically recite how the pH may be adjusted. De Micheli clearly teaches that mineral and organic acid may be used to adjust the pH of an aqueous suspension of formaldehyde.

Claims 5, 6, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riedel and Honda, and further in view of De Micheli, as applied to claims 1-4, 7-15, 18, 19, 27, and 29-34 above, and further in view of The Merk Index, 11th Edition.

The instant claims specify that at least one hydroxide group is produced from a chemical reaction, specifically, a reaction wherein a metal reacts with water. None of the previously cited references teaches how the sodium hydroxide used in the neutralization of the aldehydes is produced. However, it is well known in the art that when a metal, such as sodium, lithium, potassium, etc., reacts with water (vapor), a metal hydroxide is formed. See page 1363 of the Merk Index, wherein sodium hydroxide is listed as compound 8575, and it teaches that sodium hydroxide may be prepared from sodium metal and water vapor at low temperature. As such, such a limitation is obvious to one of ordinary skill in the art.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 recites the limitation "wherein the molar ratio of sodium hydroxide to the α -hydrogen-free aldehyde of o-phthalaldehyde..." in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim, because claim 8

Art Unit: 1621

depends on claim 7, which depends ultimately on claim 1; however, claim 1 does not specifically mention o-phthalaldehyde.

Claim Objections

Claims 16, 17, 35, and 36 are objected to as being dependent on a rejected base claim.

Response to Arguments

Applicant's arguments filed July 28, 2003 have been fully considered but they are not persuasive. Applicants have amended the independent claims to include the limitation, "wherein the treated aldehyde is non-hazardous and has a LC₅₀ greater than 500mg/L". Applicants then argue that the references cited by the examiner do not teach this specific element.

The examiner purports that essentially, applicants are attempting to claim elements that define a substance by its function or a desired results, in this case, the desired result being a neutralized aldehyde having a LC₅₀ greater than 500mg/L. It is clear that the references cited by the examiner teach a method of making a neutralized aldehyde that is analogous to the process claimed by applicants. The aldehydes taught in the prior art of record are neutralized to an extent that is consistent with the aldehydes neutralized in the process claimed herein. The examiner therefore asserts that the function, or desired result of the treated aldehydes in the prior art having a LC₅₀ greater than 500mg/L would be apparent to one of ordinary skill in the art, although not specifically mentioned in the cited references, because the aldehydes are

Application/Control Number: 09/896,589
Art Unit: 1621

Page 7

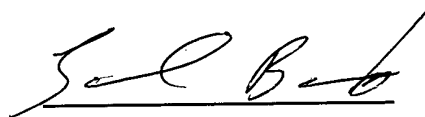
neutralized in the prior art of record in the same manner that is claimed in the process herein. Accordingly, the examiner finds that the rejections of record are proper.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikarl A. Witherspoon whose telephone number is 703-605-1206. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 703-308-4532. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

Sikarl A. Witherspoon
Patent Examiner
Technology Center 1600

A handwritten signature in black ink, appearing to read 'Samuel Barts', written over a horizontal line.

Samuel Barts

Primary Patent Examiner

Technology Center 1600